



MASSACHUSETTS BAYS PROGRAM

FY11 Annual Work Plan

July 1, 2010 to June 30, 2011



May 10, 2010

Commonly Used Acronyms

8T&B	Eight Towns & the Bay Committee
APCC	Association to Preserve Cape Cod
CCMP	Comprehensive Conservation and Management Plan
CRC	Coastal Resources Committee (Barnstable County)
CRE	Climate Ready Estuaries
CZM	Office of Coastal Zone Management
DCR	Department of Conservation and Recreation
DEP	Department of Environmental Protection
DER	Department of Ecological Restoration
DMF	Division of Marine Fisheries
DNR	Department of Natural Resource
EEA	Executive Office of Energy & Environmental Affairs
EPA	Environmental Protection Agency
GOM	Gulf of Maine
GOMC	Gulf of Maine Council
LID	Low Impact Development
MAS	Massachusetts Audubon Society
MBP	Massachusetts Bays Program
MET	Massachusetts Environmental Trust
MIT	Massachusetts Institute of Technology
MVPC	Merrimack Valley Planning Commission
MAPC	Metropolitan Area Planning Commission
MWRA	Massachusetts Water Resources Agency
NDA	No Discharge Area
NEANS	Northeast Aquatic Nuisance Species
NEP	National Estuary Program
NOAA	National Oceanic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
NPS	Non-point source pollution
NSRWA	North and South Rivers Watershed Association
QAPP	Quality Assurance Project Plan
RPA	Regional Planning Agency
RSP	Regional Service Provider
SSCW	Salem Sound Coastwatch
TNC	The Nature Conservancy
UNH	University of New Hampshire
USFWS	United States Fish & Wildlife Service
WQ	Water quality
WRP	Wetlands Restoration Program

Table of Contents

I. Introduction	4
II. Objectives for the Coming Year.....	5
III. Highlights of Successes from the Past Year.....	6
IV. Budget.....	8
V. Staff and Key Partner Responsibilities.....	13
VI. Proposed New and Ongoing Projects.....	14
VII. Previous Year's Activities.....	26
VIII. Impacts of External Factors.....	33
IX. CWA Funds Used for Travel and National Meeting Attendance	34
Attachment A: Massachusetts Bays Program Operational Procedures	
Attachment B: Massachusetts Bays Program Strategic Plan 2009-2011	

I. Introduction

The past year has been one of significant change for the Massachusetts Bays Program (MBP), particularly in the areas of program leadership and operations. In March of 2009 Jay Baker, formerly of the Massachusetts Office of Coastal Zone Management (the host of MBP) assumed the role of Executive Director of the Program, and Martin Pillsbury of the Metropolitan Area Planning Council and long standing member of the MBP Management Committee, assumed the role of Management Committee Chair. These changes in leadership have allowed the program to take a fresh look at its priorities and approaches, and to reevaluate the membership and construct of its Management Committee.

A central focus of MBP leadership and Management Committee members over the past year has been the development of formal Operational Procedures for the program that lay out the construct of the Management Committee, its leadership and subcommittees, and establishes formal Management Committee Membership (Attachment A). These Operational Procedures were unanimously adopted by the Management Committee in October of 2009 and have resulted in the nomination and appointment of a vice chair of the Management Committee, Wendy Leo of the Massachusetts Water Resources Authority. Development of these procedures has also resulted in a successful drive to reaffirm the commitment of key agencies and originations to the work of MBP. Ultimately, these procedures, leadership, and reaffirmed partnerships have and will continue to result in a new level of stability for MBP.

In conjunction with this early focus on the programmatic side of MBP, program staff, Regional Service Providers (RSPs), Management Committee members, and our partners have continued to make great strides in the implementation of MBP's Comprehensive Conservation and Management Plan. As described in the following sections, the program has had unprecedented success in winning grants and leveraging funds for projects in our planning area. Each of these efforts has resulted in productive new partnerships, and several have resulted in the addition of new members to our Management Committee.

The following pages provide more details on the nature and scope of our activities and successes over the past year, as well as our approach to continued implementation of our priorities during FY11. The reader will note that the planned activities of the program attempt to strike a balance between meeting the needs of our very diverse regions while strengthening the identity of the program and focusing efforts on the eight core elements of our strategic plan.

MBP looks forward to another successful year of achieving positive and significant environmental results for Massachusetts and Cape Cod Bays. We are indebted to our Management Committee, our primary funder, the Environmental Protection Agency, and other partners for their continued support in this planning process and Work Plan implementation. For more information please contact:

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II. Objectives for the Coming Year

MBP will continue to use the three-year Strategic Plan developed and approved in 2009 to guide forthcoming CCMP implementation efforts. The Strategic Plan is included in Attachment B and highlights goals, outcomes, and actions associated with each of the eleven objectives listed below.

Goal A: Producing significant environmental results in the MBP region

Objective A1: Protect and enhance coastal habitat

Objective A2: Reduce and prevent stormwater pollution

Objective A3: Protect and enhance shellfish resources

Objective A4: Manage local land use and growth

Objective A5: Manage municipal wastewater

Objective A6: Manage marine invasive species

Objective A7: Monitor marine waters

Objective A8: Adapt for projected impacts of climate change

Goal B: Building organizational effectiveness

Objective B1: Strengthen the identity and influence of the MBP

Objective B2: Identify and pursue alternative funding

Objective B3: Ensure effectiveness of MBP structure for managing implementation

During FY11, MBP will place emphasis on the following program areas: These priority areas were crafted and refined at a visioning session hosted by MBP in January of 2010 and are consistent with priority program areas outlined in the CCMP.

Reengaging local constituents through a Massachusetts Bays Grant Program

During FY 11, the MBP plans to run a grant program targeted at municipalities and non-profit organizations within our planning area for the first time in many years. The grant program will focus on building local capacity for future successes in implementing the CCMP and target such areas as planning for climate change adaptation, identifying local habitat protection and restoration priorities, developing watershed scale stormwater mitigation plans, and setting up stormwater financing mechanisms. In addition, this grant program will renew ties between MBP and our local constituency, building program recognition and identity, leverage additional sources of match, and provide resources to local entities during trying economic times.

Developing indicators of Ecosystem Health for the Massachusetts Bays Program Planning Area

In 2010, MBP will publish its second “State of the Bays” Report. State of the Bays identifies 17 important indicators of the health of Massachusetts Bay in three categories: water quality, living resources, and human uses. While these indicators have been carefully chosen in conjunction with the Management Committee, more work is necessary to ensure that the most important and meaningful measures of ecosystem health and function in our planning area are chosen, and that future efforts to revise the CCMP are built around these measures. Over the next year, MBP will develop a roadmap to identifying these indicators, incorporating issues of scale, data availability, and the degree to which MBP and our partners can influence their status. This effort will build on ongoing efforts within the region to identify ecosystem, based indicators (i.e. the Massachusetts Ocean Plan and the Ecosystem Indicator Partnership).

Reengaging the Metro Boston Region

MBP has undertaken significant work in recent months to reengage in our most populous communities and stakeholders in the Metro Boston Watershed. MBP is seeking funds in partnership with UMass Boston’s Urban Harbors Institute and the Neponset River Watershed Association to form a coalition of communities and environmental organizations that will identify habitat protection and restoration priorities in the Metro Boston Region. This effort will significantly elevate the presence of MBP in the

Metro Boston Region and will form the basis for further work on a variety of issue areas related to our CCMP.

III. Highlights of Successes from the Past Year

In addition to the programmatic successes outlined in Section I, MBP and its partners have had continued success in improving the health and condition of the MBP planning area. More specifically, the program has had great success over the past year leveraging funds for habitat protections and restoration and stormwater management projects. In addition, MBP has positioned itself programmatically and financially to have continued success in these areas over the coming years. Some examples of these successes and program highlights include:

Brewster's Stony Brook Receives Federal Stimulus Funding from NOAA

In June, NOAA awarded a \$1.3 million American Reinvestment and Recovery Act grant to the Stony Brook Salt Marsh and Fish Passage Restoration Project in Brewster. Situated just south of Route 6A, this site is one of the premier herring runs on Cape Cod, attracting thousands of visitors annually. The restoration will replace an undersized culvert running under Route 6A with larger, twin box culverts, enabling greater natural tidal exchange and improving herring passage to 386 acres of prime spawning grounds upstream. Project partners include the town of Brewster, MBP and its Cape Cod program host, the Association to Preserve Cape Cod, the Department of Fish and Game's Division of Ecological Restoration, and the Cape Cod Museum of Natural History.

Cape Cod Water Resources Restoration Project Approved by Congress

This landmark restoration program, which was proposed by the Natural Resources Conservation Service (NRCS), received Senate approval in late December 2009. At the press event held on January 11, 2010 to announce the project, Senator Paul Kirk (D – Massachusetts) presented the NRCS with a check for \$5 million, representing the first round of funding that will be made available in this 10-year, \$30 million restoration program. The program will pay for restoration of 26 tidally-restricted salt marshes and 24 impaired fish passages, as well as the remediation of 26 stormwater discharges into shellfish beds. The press event was held at the headquarters of the Association to Preserve Cape Cod (APCC), the MBP host for the Cape Cod region. APCC led the coalition of local environmental organizations that built public support for the project. Project partners include the Barnstable County Commissioners, Barnstable County Coastal Resources Committee, the 15 towns on Cape Cod, the Massachusetts Division of Marine Fisheries, Massachusetts Division of Ecological Restoration, and many others. The Barnstable County Coastal Resources Committee will be working with towns and agency partners to select and recommend the list of projects for funding.

Public Access and Environmental Health Improved in Salem Sound

MBP regional coordinator, Salem Sound Coastwatch, was instrumental in the acquisition of a \$500,000 grant to refurbish Furlong Park, situated along the North River in Salem. Having recently completed an Open Space and Recreation Plan, the city of Salem became eligible to apply for the Commonwealth's competitive Parkland Acquisitions and Renovations for Communities (PARC) grants. Funds are being used to improve access to the park and the river, address erosion problems at the site, and upgrade recreational amenities.

MBP Initiates Bays Wide Anadromous Fish Monitoring Effort

The North and South Rivers Watershed Association, host of the MBP's South Shore efforts, was awarded a \$25,750 grant from the Massachusetts Environmental Trust to acquire and deploy temperature and water-level data loggers in streams throughout the program's region. The project aims to address two major ecological concerns: the rapid decline of diadromous fish populations (migratory fish such as herring and eels) in coastal streams and rivers, and changes in temperature and

flow regime due to climate change. Volunteer fish counting projects will be established and/or supplemented so that fish counts can be paired with results from the data loggers. In addition, a database will be developed to house information collected that will be shared with resource managers, including the Massachusetts Division of Marine Fisheries. An outreach workshop will also be held as part of this effort, where staff and volunteers involved with the fish counts will learn how the data is being used to inform decisions related to fisheries management and climate change

Climate Ready Estuaries

The MBP has formed a partnership with EPA's Office of Research and Development on an ecological vulnerability assessment under EPA's Climate Ready Estuaries (CRE) Program. The goal is to provide place-based information on the potential implications of climate change for estuarine ecosystems and processes, in a form that will enable managers to undertake adaptation planning. Following the development of models that depict how salt marsh ecosystem processes can be affected by climate and human stressors, EPA and MBP held a workshop that will bring together a dozen experts in salt marsh ecology and coastal sediment transport. During the April 27-28 workshop, experts articulated the sensitivity of salt marsh ecosystem processes to a range of climate impacts and discussed the implications for salt marsh management in the MBP region. Findings of the workshop will be published later in 2010.

\$4.6 Million Raised in FY09

In support of projects related to core program priorities, the MBP's regional coordinators played a role in obtaining \$4,620,220 in funding in FY09. Of these, 56% of funds went towards monitoring and restoration of coastal habitats, 16% towards stormwater management and public access, and about 2% each on outreach, marine invasive species, marine debris, and boat waste. Contributing to these funds were federal agencies (45%), state agencies (37%), local sources (14%), and private sources (<1%).

Massachusetts Bays Program and Division of Marine Fisheries Win Eelgrass Restoration Grant

The Massachusetts Bays Program (MBP), in partnership with the Division of Marine Fisheries (DMF), was awarded a grant from the Association of National Estuary Programs and the National Oceanic and Atmospheric Administration to initiate eelgrass (*Zostera marina*) restoration projects in Manchester by the Sea and Provincetown Harbor. Scientists and coastal managers have witnessed a precipitous decline in eelgrass populations over the past several decades due to declining water quality and clarity, as well as direct physical impacts from recreational and commercial boating, the placement of docks and moorings, and other development activities in coastal waters. During the course of this two-year restoration and monitoring project, which will begin in the spring of 2010, the Massachusetts Bays Program, along with our regional partners Salem Sound Coastwatch and the Association to Preserve Cape Cod, will work with local harbor masters to remove traditional boat moorings, which are usually made of a large concrete block and a chain that can drag a circular scar in the eelgrass beds. Moorings will be replaced with "conservation moorings," consisting of a helical anchor that screws into the substrate, minimizing its footprint within the bed, and a floating rubber cord that secures the vessel to the anchor. This mooring technology is designed to eliminate scour and associated damage to the eelgrass bed and other habitats on the seafloor. Divers from DMF and the Environmental Protection Agency will transplant eelgrass into the mooring scars and volunteers will assist in monitoring the recovery of the beds. The projects team also includes The Nature Conservancy, who has provided an additional \$10,000 in support of the project, as well as the Provincetown Center for Coastal Studies, LightHawk Volunteer Aviators, and the National Marine Fisheries Service.

IV. Budget

The MBP Proposed FY11 Budget and Work Plan were unanimously approved by the Management Committee on March 31, 2010. The Budget Detail below outlines proposed expenditures from CWA section 320 funds based on an anticipated award of \$800,000 (section a). Additional funds from grants or other awards have not been included in the table below, but are identified in Section VI, Proposed new and Ongoing Projects. The budget also outlines proposed use of funds carried over from previous years totaling \$88,870 (Section IV.B.). Carryover funds are a result of savings due to a vacant staff position (Outreach and Policy Coordinator). Section c. indicates anticipated match for FY11 grant funds.

A. Proposed Expenditures (FY11 Grant)

Budget Detail

Personnel	
Director and Outreach Coordinator: annual salary	\$127,550
Total Personnel	\$127,550
Fringe	
Fringe @ 35.03% (33.12% Regular Fringe + Payroll Tax @ 1.91%)	\$44,681
Payroll Tax @ 1.91% (marine scientist))	\$1,094
Total Fringe	\$45,775
Travel	
Travel	\$7,000
Total Travel	\$7,000
Contractual – Subcontracts	
Marine Scientist (3/4 time)	\$57,300
Regional Coordinators (\$59,750 x 4)	\$239,000
Core Program Services	\$20,000
Total Contractual – Subcontracts	\$316,300
Contractual - Sub-grants	
Municipal Grant Program	\$155,000
Urban Harbors Institute Sub-grant	\$15,000
Total Contractual - Sub-grants	\$170,000
Indirect	
Indirect Charges @ 25.74% (personnel and contractual)	\$114,247
Total Other Charges	\$114,247
Other Expenses	
Other (printing, IT, admin, supplies, etc.)	\$19,128
Total Other Expenses	\$19,128
Total	\$800,000

Budget Narrative

Personnel: Personnel and Fringe: MBP will continue to support the salary of two full time central staff positions: Executive Director (\$72,550) and Program Coordinator (\$55,000). Fringe and payroll taxes bring the total budget for full time personnel to \$173,325.

Travel: The travel budget of \$7,000 will support, at a minimum, travel of the Director to the Annual NEP Director's meeting as well as the Association of National Estuary Program's fall meeting. Other travel to conferences, workshops, and meeting will be considered on a case by case basis.

Contractual-subcontracts: In addition to the two full time staff, MBP will continue to support a three-quarter time, contract Marine Scientist Position (\$57,300).

MBP will continue to support four Regional Service Providers in our Upper North Shore, Salem Sound, South Shore, and Cape Cod Regions. Funding for these positions will be held at FY10 levels of \$59,750/region due to state funding guidelines.

MBP has budgeted \$20,000 to support the development of core program services that are beyond the scope of staff and RC work plans. These services will likely include the development of Quality Assurance Project Plans and the development of MBP branding materials.

Contractual-subgrants: MBP has budgeted \$155,000 for an FY11 Municipal Grant Program. We anticipate selecting 8-10 projects ranging from \$15-25,000 per project.

MBP has also budgeted \$15,000 as match for the Urban Harbors Institute/MBP Habitat Atlas grant application and project-details in section VI., below.

Indirect: The state indirect rate will be assessed against all personnel and contractual budget items. Sub-grants are exempt from indirect charges.

Other Expenses: MBP has budgeted the remaining funds (\$19,128) for printing, supplies and the maintenance of server space for the MBP Web Page.

B. Proposed Expenditures (Carryover)
Budget Detail

Personnel	
Admin Support	\$20,000.00
Total Personnel	\$20,000.00
Contractual	
Eelgrass/Conservation Moorings	\$10,000.00
Regional Projects (\$10,000x4)	\$40,000.00
Total Contractual	\$50,000.00
Other	
Indirect Charges @ 25.74% (contractual only)	\$12,870.00
Rapid Assessment Survey	\$7,000.00
Total Other Charges	\$19,870.00
Total	\$89,870.00

Budget Narrative

Personnel: A small portion of the carryover funds will be used to support the salary of the CZM fiscal agent who manages the MBP/EPA agreement, and provides accounting services for all MBP subcontract and sub-grant transaction.

Eelgrass/Conservation Moorings: \$10,000 budgeted for this project will support DMF dive time (\$6,000) and education/outreach materials (\$4,000).

Regional Projects: MBP has budgeted \$10,000 for each of four projects to be led by Regional Service Providers. These projects are aligned with habitat priority objectives for FY11 as outlined in Section III, and are detailed in Section VI., below.

C. Match Budget Detail

Match Source	Match Amount*
Merrimac Valley Planning Commission (Upper North Shore RSP)	
Regional Service Provider Additional Salary \$67K (includes fringe and indirect)	\$67,000.00
Staff contributions to CCMP Implementation in addition to the Regional Coordinator (salary)	\$40,000.00
Local Governance Committee members-volunteer services	\$12,000.00
Salem Sound Coastwatch (Salem Sound RSP)	
Cash Match for priority projects (salt marsh monitoring, clean beaches and streams, etc.)	\$29,615.00
Greenscapes Community Contributions	\$7,000.00
Indirect (office space, supplies, etc)	\$25,000.00
North and South Rivers Watershed Association (South Shore RSP)	
Staff contributions to CCMP Implementation in addition to Regional Coordinator: salt marsh monitoring and restoration, and stormwater projects (salary)	\$54,885.00
Greenscapes Community Contributions	\$20,000.00
South River Bacterial Source Tracking (cash)	\$1,100.00
Riverwatch (cash)	\$1,500.00
Non-federal habitat and stormwater grants	\$175,000.00
Association to preserve Cape Cod (Cape Cod RSP)	
Staff contributions to CCMP Implementation in addition to Regional Coordinator: salt marsh monitoring and restoration, and stormwater projects, local policy and technical assistance (salary)	\$49,600.00
State salt marsh monitoring grant	\$25,000.00
Salt marsh mapping for climate adaptation	\$20,000.00
Mapping Cape Cod open space	\$65,000.00
Support Zoning reform	\$10,000.00
Local matching funds for MBP Municipal Grant Program	\$77,500.00
CZM Habitat Grants Program	\$74,924.00
The Nature Conservancy Conservation Mooring Project Support	\$20,000.00
Metro Boston Embayment Atlas (49,065.97 pending)	\$51,462.00
Total	\$826,586.00

*Contribution are in-kind unless otherwise indicated

Budget Narrative

MBP has worked closely with its regional partners to identify new sources of match for the program. These funding sources are linked directly to the implementation of the CCMP as well as the 2009-2012 Strategic Plan. Each of our RSPs has identified a substantial cash and in-kind match as detailed above. Funding sources from RSPs include revenue from membership, state and local grants, local donors etc., as well as the work of staff within these organizations on projects specifically related to our estuarine restoration and conservation efforts.

MBP anticipates that the Municipal Grant Program will result in a 50% match of the total funds dedicated to this effort (\$155,000). A cash and/or in-kind match will be a requirement of the grant program and additional consideration will be granted to those projects that provide additional match.

CZM will provide matching funds to MBP through its Habitat Grant Program. The non-federal contribution towards habitat restoration projects planned for the MBP program area totals \$85,404 distributed across four projects.

The Nature Conservancy has contributed \$20,000 in funds to the Eelgrass/Restoration/ Conservation Mooring project. This funding was not included as match in the ANEP grant application.

Finally, the Neponset River Watershed Association has dedicated \$2,000 in-kind to the Metro Boston Embayment Atlas Project. If funded by the Massachusetts Environmental Trust (funding announcements are scheduled for May of 2010) this project will generate an additional \$49,461.97 in additional cash match for MBP.

V. Staff and Key Partner Responsibilities

Executive Director

The MBP Executive Director (the Director), Jay Baker, is responsible for the overall management of the program, including administration of grants and contracts, staff supervision, and general program operations. The Director works with the MBP Management Committee and program staff to set priorities for the program and facilitates development of the three year Strategic Plan as well as an annual Work Plan and grant application to EPA. The Director coordinates with EPA and the host agency, CZM, on administrative and programmatic issues, and provides oversight to RSPs. The Director also develops and leads MBP technical and policy initiatives as needed, and will work with staff, the Management Committee, and partners to seek additional resources for MBP.

Outreach and Policy Coordinator

The Outreach and Policy Coordinator position was vacated in December of 2009 and is currently being reposted (April 2010) as an MBP Program Coordinator position.

Program Coordinator (to be filled by July 1, 2010)

The Program Coordinator position has been crafted to ensure that day to operational functions of MBP are filled. The Program Coordinator will assist the MBP Director in many aspects of program administration and management, including MBP outreach projects and contracts, promoting program identity and accomplishments, supporting RSP outreach efforts, and coordinating Management Committee meetings. The Program Coordinator will also serve in a lead role in managing projects related to topics such as climate change adaptation and habitat assessment and will run the MBP Grant Program planned for FY11.

Marine Scientist

The primary role of the Marine Monitoring Scientist (the Scientist), Christian Krahforst, is to identify and fill research and monitoring needs in the MBP planning area that are consistent with the priorities of the CCMP and the annual Work Plan. The Scientist will work with MBP staff and Regional Service Providers to identify local research needs, assist with the development and implementation of monitoring efforts, and guide technical elements of the MBP, all of which will be articulated in an annual Marine Monitoring and Research Plan. The Scientist will serve as the lead on the development of the 2009 State of the Bays Report, the development of Quality Assurance Project Plans for relevant MBP initiatives, and coordination of MBP's involvement in the National Coastal Assessment Program. The Scientist will assist with program management requirements as necessary.

Regional Service Providers

MBP's four Regional Service Providers serve as our primary means of communication with the communities of the MBP planning area. RSPs are responsible for identifying regional priorities that are consistent with the CCMP and Strategic Plan, and for developing strategies for implementing the annual Work Plan at the local level. RSPs are hosted by regional planning agencies or nonprofit organizations that currently include:

- The Merrimack Valley Planning Commission: Upper North Shore Region
- Salem Sound Coastwatch: Salem Sound Region
- The North and South Rivers Watershed Association: South Shore Region
- The Association to Preserve Cape Cod: Cape Cod Region.

RSPs are responsible for coordinating the activities of MBP with these organizations. MBP will renew the four existing RSP contracts in FY11.

VI. Proposed New and Ongoing Projects

Goal A: Producing significant environmental results in the MBP Region

Objective A1: *Protect and enhance coastal habitat*

In accordance with the 2009-2011 Strategic plan, the MBP focus for FY11 under this objective will be the restoration of critical coastal habitat, planning for future habitat protection and restoration initiatives, mapping and removal of invasive salt marsh vegetation, and developing indicators of ecosystem health. Under this objective, the program plans to lead and/or facilitate the restoration of over 700 acres of estuarine habitat in FY11, including salt marsh, eelgrass, anadromous fish runs and coastal park land.

The following projects are organized by region, beginning with “bays-wide” initiatives (initiatives that will occur throughout our planning area) and moving to projects occurring in individual regions. Clean Water Act Core Program Areas referenced below include: (1) strengthening water quality standards, (2) improving water quality monitoring, (3) developing total maximum daily loads, (4) controlling nonpoint source pollution on a watershed basis, (5) Strengthening National Pollution Discharge Elimination Permits, and (6) supporting sustainable wastewater infrastructure. Support of the EPA Wetlands Program is also indicated below.

Proposed New Activities

- **A1a. Massachusetts Bays Program Planning Grants.** New in FY11, MBP will manage a small grants program targeted at municipalities within our planning areas as well as non-profit organizations. Individual grant will range from \$15K-\$25K and will be devoted to projects that involve comprehensive town or watershed scale planning in the areas of stormwater remediation, habitat restoration and protection, and climate change adaptation.
 - Responsible Parties: the Mass Bays Director and Program Coordinator will administer the grant program. RSPs will manage projects located in their respective regions.
 - Budget: \$155,000 MBP cash
 - Products: To Be Determined based on RFP Process
 - Outcomes: Road map for future initiatives in MBP priority program areas; increased partnerships among MBP communities and non-profits
 - Region: Bays-wide
 - Time Line: RFP administered in summer 2010, Projects completed in summer 2011
 - CCMP Action item: This activity will cover many areas of CCMP including Action items 3-Protection and enhancing coastal habitat and 4-Reducing and preventing stormwater pollution.
 - CWA Core Program Area: 2,3,4,5,6, Wetlands Program
- **A1b. Develop Ecosystem Indicators:** MBP will place renewed emphasis in FY11 on the development of ecosystem indicators for the planning area, building on the efforts of the Ecosystem Indicator Partnership and the Massachusetts Ocean Plan. A committee of staff, Management Committee members, and scientists has been assembled to explore options for developing indicators by region and integrating these indicators into planning and reporting efforts.
 - Responsible Parties: Marine Scientist, South Shore RSP
 - Budget: \$0 MBP cash
 - Products: Road map to developing ecosystem, indicators
 - Resources: Staff, RCs, Management Committee
 - Outcomes: Shared understanding among MBP Staff, Management Committee members, and partners about appropriate indicators of ecosystem health
 - Region: Bays-wide

- Time Line: Now-June 2011
- CCMP Action Item: This activity will provide a starting point for updating the CCMP
- CWA Core Program Area: 2. Wetlands Program

- **A1c. Pepperweed Monitoring, Mapping, and Eradication:** In FY11, MBP will develop a bays wide pepperweed (*Lepidium latifolium*) monitoring, mapping, and education initiative. The effort will focus on mapping stands of pepperweed where it is currently established (Upper North Shore, Salem Sound), and educate communities about incipient occurrences in areas where populations have yet to be documented. MBP will develop standard education and outreach materials for the entire planning area, and develop a shared pepperweed outreach plan.
 - Responsible Parties: Upper North Shore RSP (lead); other RSPs, Program Coordinator
 - Budget: \$10,000 MBP Cash
 - Products: Pepperweed identification and outreach materials: comprehensive maps of pepperweed incursions for each region (where applicable), presentations to local boards and committees (at least two per region)
 - Outcomes: Improved understanding of pepperweed distribution; reduced pepperweed population; increased local knowledge and awareness of the pepperweed problem
 - Region: Bays-wide
 - Time Line: Develop outreach materials-Fall 2010; local presentations-FY11, mapping and monitoring-ongoing through FY11.
 - CCMP Action Item: Action Plan 3.13: Work with CZM to develop scientific methods for assessing the ecological integrity of coastal wetlands and to train volunteers in data collection.
 - CWA Core Program Area: 2, Wetland program

- **A1d. Diadromous Fish Run Monitoring:** MBP will utilize funding from the Massachusetts Environmental Trust to install water level and temperature data loggers in streams throughout the MBP planning area. Volunteers will count fish in these streams and the volunteer and logger data will be entered into an online database. A workshop in partnership with NOAA will be held to share data and discuss the status of herring in Massachusetts. MBP will also use the data collected to monitor any climate-related changes in the systems.
 - Responsible Parties: South Shore RSP (lead); all RSPs, Marine Scientist
 - Budget: \$20,000 MET Grant
 - Products: volunteer fish count data; temperature and water level data; publicly accessible, on-line database; outreach workshop
 - Outcomes: Improved state and local understanding of diadromous fish run status in Massachusetts; baseline established for tracking changes in stream characteristics due to climate change.
 - Region: Bays-wide
 - Time Line: ongoing-June 2011
 - CCMP Action Item: 3.11- Prepare an up-to-date inventory of anadromous fish runs in the Massachusetts Bays region and develop a strategy to prioritize, restore, and maintain these runs.
 - CWA Core Program Area: 2, Wetland program

- **A1e. Eelgrass Restoration and/Conservation Moorings:** MBP was awarded \$30,000 through by the Association of National Estuary Programs to undertake eelgrass restoration initiatives in the towns of Manchester by the Sea and Provincetown, Massachusetts. The project will replace 14 traditional block and chain moorings with low-impact conservation

mooring systems and transplant eelgrass into mooring scars. The project is expected to improve up to 4 acres of heavily impacted eelgrass.

- Responsible Parties: Executive Director, Salem Sound RSP, Cape Cod RSP
 - Budget: \$10,000 MBP cash, \$30,000 ANEP Grant, \$20,000 The Nature Conservancy
 - Products: Up to 4 acres of eelgrass habitat improved, education and outreach materials (TBD)
 - Outcomes: improved local understanding of the value of eelgrass beds and options for reducing navigational impacts; Expanded eelgrass habitat along the Massachusetts Coast.
 - Region: Salem Sound and Cape Cod
 - Time Line: Conservation moorings and eelgrass transplants-Spring and summer 2010, Follow up monitoring-Fall, 2010, spring and fall 2011.
 - CCMP Action Item: 3.14-Continue and expand current efforts to support eelgrass protection and restoration in Massachusetts and Cape Cod Bays.
 - CWA Core Program Area: 2, Wetland program
- **A1f. Great Marsh Watershed Action Plan:** MBP will support the efforts of an interagency/inter-municipal committee to secure funding to develop a Great Marsh Watershed Action Plan. (The cost of developing the plan is estimated to be \$350,000 by NRCS.) These efforts will include building a coalition of nonprofit and state environmental agencies to support the effort, delineation of the proposed project area, and developing an official list of project sponsors.
 - Responsible Parties: Upper North Shore RSP
 - Budget: \$0 MBP Cash
 - Products: Formal list of partners and final study area delineation
 - Outcomes: Coalition of Upper North Shore constituents poised to identify restoration priorities for the region
 - Region: Upper North Shore
 - Time Line: ongoing through 2001-2012
 - CCMP Action Item: 3-Protecting and Enhancing Coastal Habitat
 - CWA Core Program Area: 2,4,5 Wetland Program
- **A1g. State of Salem Sound Conference:** The Salem Sound RSP, Salem Sound Coastwatch will mark its twentieth anniversary by organizing a “State of Salem Sound” symposium. A two-day conference will be held in November 2010 that will bring together key stakeholders and present environmental accomplishments, update scientific knowledge surrounding the environmental health of the Sound and its watershed, and discuss challenges still needing to be addressed.
 - Responsible Parties: Salem Sound RSP
 - Budget: \$10,000 MBP Cash
 - Products: State of Salem Sound Symposium and proceedings
 - Outcomes: Updated, shared knowledge of changes in and condition of Salem Sound. Improved understating of environmental management priorities.
 - Region: Salem Sound
 - Time Line: symposium scheduled for November 2010
 - CCMP Action Item: 17.2 Develop and produce a State of the Coast Report
 - CWA Core Program Area: 4, 5 Wetland Program
- **A1h. Boston Harbor Habitat Atlas:** MBP and the UMass Boston Urban Harbors Institute (UHI) have submitted a joint application to the Massachusetts Environmental Trust to develop a digital atlas of habitat protection and restoration opportunities for the Metro Boston

Region. If funded, the project will build a coalition of environmental groups to identify habitat data sources and priorities and increase the presence of MBP in this region.

- Responsible Parties: Executive Director, Program Coordinator, UHI
 - Budget: \$10,000 MBP Cash; \$50,000 requested of MET
 - Products: Digital Atlas of prioritized habitat protection and restoration opportunities within the Metro Boston Region
 - Outcomes: Shared understanding of habitat protection and restoration opportunities, increased success in securing funding for identified projects, increased habitat protection partnerships in the region
 - Region: Metro Boston
 - Time Line: Grant Decisions, May 2010; Atlas completed, summer 2011
 - CCMP Action Item: 3-Protecting and Enhancing Coastal Habitat
 - CWA Core Program Area: Wetland Program
- **A1i. South Shore Stream Restoration Plan:** MBP will work with South Shore communities to generate a prioritized list of stream restoration opportunities in the South Shore Region. We will integrate existing data with field surveys and local knowledge to develop a draft list of priority sites for restoration (dam removal/breaching, culvert replacement).
 - Responsible Parties: South Shore RSP
 - Budget: \$10,000 MBP Cash;
 - Products: Annotated database synthesizing available data; draft list of reasonable priorities for restoration
 - Outcomes: Integration of previously separate datasets and information; improved direction for planning stream restoration on the South Shore
 - Region: South Shore
 - Time Line: July 2010-June 2011; ongoing
 - CCMP Action Item: 3.11- Prepare an up-to-date inventory of anadromous fish runs in the Massachusetts Bays region and develop a strategy to prioritize, restore, and maintain these runs.
 - CWA Core Program Area: 2, Wetland Program
 - **A1j. Critical Habitat Atlas of Cape Cod:** MBP Cape Cod RSP, the Association to Preserve Cape Cod will Update its Critical Habitats Atlas of Cape Cod, focusing on identifying sensitive coastal habitats that are in need of special protection. The existing Atlas, which identifies sensitive and critical habitats throughout Cape Cod, was created by APCC more than a decade ago and has been used by the Cape Cod Commission to review Developments of Regional Impact for potential impacts on sensitive natural resources.
 - Responsible Parties: Cape Cod RSP
 - Budget: \$10,000 MBP Cash;
 - Products: Plan and data inventory for updating the Atlas
 - Outcomes: Improved state and local understanding of location, type of, and threats to critical habitats on Cape Cod
 - Region: Cape Cod
 - Time Line: July 2010 start date. This is a multi-year project, which will likely require input and possibly technical services from local experts in ecology, botany, wildlife, natural resource management, and coastal habitats.
 - CCMP Action Item: 3-Protecting and Enhancing Coastal Habitat
 - CWA Core Program Area: Wetland Program
 - **A1k. Cape Cod NRCS Watershed Action Plan technical assistance:** The MBP Cape Cod RSP will assist the Cape Cod Coastal Resources Committee with the implementation of the

Cape Cod Watershed Action Plan. The RSP will coordinate with project selection and management, oversight of monitoring activities, and reporting. This project aims to restore 26 tidally restricted salt marshes, restore approximately 24 impaired fish runs, and remediate 24 stormwater outfalls over a ten year period.

- Responsible Parties: Cape Cod RSP
- Budget: \$5 million from NRCS during FY11 (\$0 MBP cash)
- Products: List of projects for first round of funding; design plans for selected projects (possible)
- Outcomes: Inter-municipal understanding of priority habitats and projects on Cape Cod
- Region: Cape Cod
- Time Line: February 2009-2019
- CCMP Action Item: 3-Protecting and Enhancing Coastal Habitat
- CWA Core Program Area: 2, 4, 5 Wetland Program

Ongoing Initiatives: (additional details related to ingoing initiatives can be found in the FY10 and previous Work Plans)

- **A1l. Great March *Phragmites* monitoring and control:** The Upper North Shore RSP continues to play a lead role in mapping and active management of the common reed (*Phragmites australis*) and pepperweed in the great marsh system. The RSP is seeking additional funding to continue this effort and to utilize remote sensing to identify priority incursions for control.
 - Responsible Parties: Upper North Shore RSP
 - Budget: \$0 MBP Cash
 - Products: Maps of *Phragmites* populations
 - Outcomes: Reduced Great Marsh population of *Phragmites*
 - Region: Upper North Shore
 - Time Line: Summer 2010, ongoing
 - CCMP Action item: 3.15-Develop scientific methods for assessing the ecological integrity of coastal wetlands
 - CWA Core Program Area: Wetland Program
- **A1m. Salem Sound Wetlands Monitoring.** The Salem Sound RSP continues to organize volunteers to conduct pre and post restoration salt marsh monitoring efforts. Salt marshes to be monitored in FY11 include Thissel Marsh (Beverly) and the Old Creek/Pickman Park complex (Salem). Monitoring will also support ongoing efforts in Massachusetts to develop a Conservation Assessment and Prioritization system for coastal wetlands in Massachusetts.
 - Responsible Parties: Salem Sound RSP
 - Budget: \$0 MBP Cash
 - Products: Salt marsh evaluation reports
 - Outcomes: Improved understanding of restoration needs and results in monitored salt marshes
 - Region: Salem Sound
 - Time Line: Summer 2010; ongoing
 - CCMP Action item: 3.15-Develop scientific methods for assessing the ecological integrity of coastal wetlands
 - CWA Core Program Area: Wetland Program
- **A1n. South Shore Habitat Restoration:** The South Shore RSP will continue to organize students and volunteers to conduct pre-and post restoration monitoring at various locations including Mushquashcut Pond, Broad Cove, Green Harbor, and the Parker Avenue Cut. In

addition, the South Shore RSP will provide support for several ongoing restoration efforts such as the First Herring Brook fish run restoration, the Third Herring Brook stream restoration, and Inner Little Harbor tide gate management efforts.

- Responsible Parties: South Shore RSP
 - Budget: \$0 MBP Cash
 - Products: Monitoring data and summary reports
 - Outcomes: Improved understanding of restoration needs and successes; students educated in scientific monitoring methodology and the practice of restoration ecology
 - Region: South Shore
 - Time Line: Summer 2010; ongoing
 - CCMP Action item: 3.15-Develop scientific methods for assessing the ecological integrity of coastal wetlands
 - CWA Core Program Area: Wetland Program
- **A1o. Duxbury Bay Management Plan:** The South Shore RSP will continue assisting local communities in developing a comprehensive management plan for Duxbury Bay.
 - Responsible Parties: South Shore RSP
 - Budget: \$0 MBP Cash
 - Products: Data on Duxbury Bay habitats and organisms including horseshoe crabs and invasive species; final Duxbury Bay Management Plan
 - Outcomes: Improved Management of Duxbury Bay
 - Region: South Shore
 - Time Line: now through June 2011; ongoing
 - CCMP Action item: 3.5-Prepare and implement ecosystem based Barrier Beach Management Plans; 3.15-Develop scientific methods for assessing the ecological integrity of coastal wetlands; 16.2 Coordinate with scientists and managers to develop a monitoring program for marine invasive species
 - CWA Core Program Area: 2,4, Wetland Program
 - **A1p. Cape Cod Habitat Planning and Restoration:** The Cape Cod RSP will continue to play a supporting role in advancing salt marsh and diadromous fish restoration projects such as the Stony Brook Restoration Project, Mayo Creek Salt Marsh Restoration feasibility study and the Upper Shawme Pond fish run restoration.
 - Responsible Parties: Cape Cod RSP
 - Budget: \$0 MBP Cash
 - Products: Salt marsh and anadromous fish run data and monitoring reports
 - Outcomes: improved understanding of restoration needs and successes; citizenry educated on salt marsh and anadromous fish monitoring and restoration needs and techniques
 - Region: Cape Cod
 - Time Line: ongoing
 - CCMP Action item: 3.15-Develop scientific methods for assessing the ecological integrity of coastal wetlands; 3.12-Develop and implement a citizen-based Fishway Stewardship Program
 - CWA Core Program Area: Wetland Program

Objective A2: *Reduce and prevent stormwater pollution*

MBP will continue to play a key role in assisting communities and local citizens in minimizing impacts from stormwater pollution. Efforts in 2011 will focus on providing technical assistance to communities in implementing stormwater financing mechanisms and complying with stormwater regulations. MBP

will continue to promote the Greenscapes program, and ensure that this effort continues to address priority stormwater management issues within each region.

Proposed New Initiatives

- **A2a. Promote the development of Municipal Stormwater Utilities in conjunction with NPDES Phase II permit roll-out:** MBP has taken a lead role in prompting the implementation of stormwater utilities or other independent stormwater financing mechanism in our 50 coastal communities. On February 4, 2010, EPA released a draft of its revised NPDES Phase II MS4 permit. Currently in the public comment period, this permit will likely require municipalities to assume expanded responsibility in the management and monitoring of stormwater discharges. MBP is currently developing a strategy to couple workshops related to the new Phase II requirements with workshops on the development and implementation of stormwater financing mechanisms.
 - Responsible Parties: MBP Director, staff, and RSPs
 - Budget: \$0 MBP Cash
 - Products: Series of workshops on the new MS4 permit and stormwater utilities (number TBD). Other outreach products TBD based, in part, on the final permit
 - Outcomes: Improved understanding of the requirements of the new permit. Improved understanding of stormwater financing mechanisms. Expanded financial capacity to implement stormwater management initiatives.
 - Time Line: July 2010-June 2011.
 - CCMP Action Item: MBP will...support efforts to create local stormwater utilities.
 - CWA Core Program Area: 2, 3, 4, 5
- **Massachusetts Bays Program Planning Grants** (see above)
- **A2b. South River Bacteria Source Tracking:** The South Shore RSP assisted the Town of Marshfield in securing funding to identify sources of bacteria in the South River. The RSP will lead the monitoring effort and conduct certified lab analyses in conjunction with a local student center, the Cohasset Center for Student Coastal Research.
 - Responsible Parties: South Shore RSP
 - Budget: \$0 MBP Cash
 - Products: South River bacteria data and associated reports; prioritized list of sites for remediation; preliminary designs for remediation options
 - Outcomes: Shared understanding of sources of impairment to the South River. Improved health of the river.
 - Time Line: July 2010-June 2011.
 - CCMP Action Item: 4.2-Implement BMPs to mitigate existing stormwater discharges that are causing or contributing to the closure of shellfish harvesting areas or swimming beaches.
 - CWA Core Program Area: 2, 3, 4, 5, 6
- **A2c. Cape Cod Stormwater Atlas:** The Cape Cod RSP, APCC, has submitted a proposal to the Massachusetts Environmental Trust to undertake the first phase of creating a comprehensive atlas of stormwater discharges on Cape Cod. The Stormwater Atlas will link stormwater discharges with receiving waters containing important resources (e.g., shellfish beds and swimming beaches) that are impacted or at risk from stormwater-related pollution.
 - Responsible Parties: Cape Cod RSP
 - Budget: \$25,000 requested (\$0 MBP cash)
 - Products: Cape Cod Stormwater Atlas

- Outcomes: Improved understanding of local stormwater remediation priorities and opportunities on Cape Cod
 - Region: Cape Cod
 - Time Line: Grant Decisions, Grant award-May 2010; Atlas completed, summer 2011
 - CCMP Action Item: 4.10-Develop and implement stormwater management plans for compliance with Phase II NPDES regulations.
 - CWA Core Program Area: 2, 3, 4, 5, 6
- **Cape Cod NRCS Watershed Action Plan Technical assistance** (see above)

Ongoing Initiatives

- **A2d. Greenscapes:** MBP continues to be an active partner in the Greenscapes ecological landscaping program: For 2011, the MBP will work with Greenscapes partners to continue to provide meaningful benefits to municipal partners while fulfilling outreach requirements of NPDES Phase II permits. Possible directions for the program include expanding beyond residential landscapes and including commercial facilities, and making a tighter connection with stormwater runoff issues.
 - Responsible Parties: RSPs
 - Budget: \$0 MBP Cash
 - Products: Greenscapes Calendar and Newsletter; Greenscapes web site, additional products to be determined
 - Outcomes: Citizenry educated on low impact landscaping practices; reduced contaminated runoff from landscaped areas
 - Region: Bays-wide
 - Time Line: ongoing
 - CCMP Action item: 4.11 Provide technical assistance for developing and implementing non-structural stormwater BMPs
 - CWA Core Program Area: 4
- **A2e. Salem Sound Clean Beaches and Streams Program:** As part of this ongoing program, the Salem Sound RSP trains and coordinates volunteers to sample up to 30 stormwater outfalls throughout the watershed twice weekly during the field season. The program has identified numerous bacterial hotspots, informed the public about the risk of swimming and wading in contaminated waters, and resulted in the initiation of important stormwater remediation projects.
 - Responsible Parties: Salem Sound RSP
 - Budget: \$0 MBP Cash
 - Products: Bacterial analysis and deliverables for 20 stormwater outfalls in Salem Sound
 - Outcomes: Improved understanding of stormwater mitigation priorities in Salem Sound
 - Region: Salem Sound
 - Time Line: Sampling and data analysis will occur June 2010-September 2010
 - CCMP Action item: 4.2-Implement BMPs to mitigate existing stormwater discharges that are causing or contributing to the closure of shellfish harvesting areas or swimming beaches
 - CWA Core Program Area: 2, 4

Objective A3: *Protect and enhance shellfish resources*

MBP will continue to protect shellfish resources, primarily through the restoration of salt marsh habitat and the mitigation of stormwater pollution. During FY11, MBP will explore its role in promoting direct shellfish bed restoration efforts.

New Initiatives

- **Cape Cod NRCS Watershed Action Plan Technical assistance** (see above)

Ongoing Initiatives

- **A3a. Mill River Benthic Survey:** The Salem Sound RSP will continue to conduct benthic/shellfish surveys of the system in order to determine whether restored tidal flows have created more suitable habitat for commercially valuable shellfish. FY2011 marks the third and final year of this three-year study.
 - Responsible Parties: Salem Sound RSP
 - Budget: \$0 MBP Cash
 - Products: Benthic survey and associated final report; project website
 - Outcomes: improved understanding of the recovery of clam flats and benthic organisms following tidal restoration
 - Region: Salem Sound
 - Time Line: final sampling, summer 2010; final report, fall 2011
 - CCMP Action Item: 3.13 continue the Wetlands Restoration Program to restore and degraded coastal and inland wetlands.
 - CWA Core Program Area: Wetland Program
- **A3b. Duxbury Stormwater Remediation Technical Assistance:** MBP and CZM have been working for a number of years with the town of Duxbury to identify stormwater remediation priorities in an area of the Bay called “the Nook” and to install stormwater remediation best management practices (BMPs). Both CZM and the town have provided significant funding for these efforts over the past five years. Now that much of the planning work is completed, MBP, CZM, and the town are working with the Division of Marine Fisheries (DMF) to reassess the water quality of the Nook and determine whether historically contaminated shellfish beds can be reopened for harvest or upgraded.
 - Responsible Parties: MBP Director; South Shore RSP
 - Budget: \$0 MBP Cash
 - Products: Shellfish beds reclassified in Duxbury Bay
 - Outcomes: Shellfish beds reclassified in Duxbury Bay
 - Region: South Shore
 - Time Line: Discussion will be ongoing in 2010
 - CCMP Action Item: 2.3 ...restore and protect shellfish beds impacted by stormwater pollution.
 - CWA Core Program Area: 2, 4

Objective A4: *Manage local land use and growth*

MBP and its RSPs will continue to provide technical assistance on Low Impact Development and Smart Group within the MBP Planning area. While staff and RSPs are active on local boards and committee related to local land use and growth, no major initiatives are planned, so far, for FY2011.

Objective A5: *Manage Municipal wastewater*

MBP staff and RSPs have played a crucial role in the designation of Massachusetts and Cape Cod Bay as a boat waste No Discharge Area. (The only remaining, undesignated section is the Upper North Shire, where the NDA application is pending). RSPs will continue to provide outreach and technical assistance related to boat waste issues in conjunction with CZM and EPA. In addition, the Cape Cod RSP will continue to provide local technical assistance on the development of Municipal Wastewater Management Plans, which are critical for the successful implementation of TMDLs.

Objective A6: *Manage Marine Invasive Species*

MBP will continue to play a lead role in monitoring for marine invasive species, educating the public about the threats from these organisms and preventing their spread, and advancing state and local policies that minimize new invasions.

New Initiative

- **A6a. Marine Invasive Species Rapid Assessment Survey:** Over the past decade, MBP has played a lead role throughout New England in the monitoring and management of marine invasive species. During the summer of 2010, MBP will again support a rapid assessment survey for marine invasive species. The project will organize a team of taxonomic experts to survey floating docks and piers and adjacent wetland habitats beginning in Casco Bay and continuing south through Massachusetts Bay to Narragansett Bay.
 - Responsible Parties: MIT Sea Grant (MBP Management Committee Member), Executive Director, RSPs
 - Budget: \$7,000 MBP cash
 - Products: Report on survey results
 - Outcomes: Improved understanding of the distribution of marine invasive species, threats, and potential management efforts
 - Region: Bays-wide
 - Time Line: Survey conducted late summer 2010. Report submitted summer of 2011.
 - CCMP Action Item: 16.2-Develop a monitoring strategy for marine invasive species and periodically conduct rapid assessment surveys.
 - CWA Core Program Area: Wetland Program

Ongoing Initiatives**A6b. Support Marine Invasive Species Monitoring and Information Collaborative:**

MBP will continue to support the Marine Invader Monitoring and information Collaborative (MIMIC) by organizing volunteers to monitor for marine invasive species in the Upper North Shore, Salem Sound, and South Shore Regions. RSPs will coordinate monitoring at a minimum of 20 sites throughout the MBP planning area.

- Responsible Parties: RSPs
- Budget: \$0 MBP Cash
- Products: Data reports for a minimum of 20 locations; data uploaded to MIMIC web site
- Outcomes: Improved understanding of invasive species colonization, transport, dispersal and distributions in Massachusetts and Cape Cod Bays.
- Region: Bays-wide
- Time Line: Sampling from May-November 2010; Data Reports Fall-Winter, 2010.
- CCMP Action item: 16.2-Develop a monitoring strategy for marine invasive species and periodically conduct rapid assessment surveys.
- CWA Core Program Area: Wetland Program

Objective A7: *Monitor marine waters*

MBPs primary role in monitoring marine waters will be through its participation in the EPA lead National Coastal Assessment Initiative. MBP is exploring efforts to enhance marine monitoring efforts beginning with the development of indicators of ecosystem health for each region.

New Initiatives

- **A7a. National Coastal Assessment.** MBP continues to be a strong partner of the EPA National Coastal Assessment program and will continue to assist in the program's efforts to "survey the condition of the nation's coastal resources" by coordinating sampling and reporting efforts in Massachusetts. MBP will rely heavily on a partnership with the University of Massachusetts Boston (UMB) to complete all required work.

- Responsible Parties: Marine Scientist, UMB
 - Budget: \$185,000
 - Products: Quarterly Reports to the Massachusetts Department of Environmental Protection (DEP). Final report to DEP and EPA
 - Outcomes: Improved understanding of the ecological and environmental conditions in U.S. coastal waters
 - Region: Bays-wide
 - Time Line: Sampling of water, biota, and sediment will occur during the NCCA index period of July-Sept, 2010 at 34 stations along the coast of Massachusetts waters. A final report will be submitted to EPA by June, 2011.
 - CCMP Action Item: 17.2-Coordinate on the design and implementation of a marine monitoring plan.
 - CWA Core Program Area: 2, 3, 4, 5
- **A7b. Salem Sound Water Quality Assessment Report:** In 1997, DMF conducted an assessment of the marine resources of Salem Sound (Technical Report TR-6), which provided a baseline for water quality in the watershed. SSCW will reassess water quality to be able to make comparisons to the 1997 baseline. Findings will be reported at the State of Salem Sound conference.
 - Responsible Parties: Salem Sound RSP
 - Budget: \$0 MBP Cash
 - Products: Report for presentation at the State of Salem Sound Symposium
 - Outcomes: Updated, shared knowledge of changes in and condition of Salem Sound; improved understating of environmental management priorities.
 - Region: Salem Sound
 - Time Line: Final report to be completed by November 2010
 - CCMP Action Item: 17.2 Develop and produce a State of the Coast Report
 - CWA Core Program Area: 4, 5, Wetland Program

Objective A8: *Adapt for projected impacts of climate change*

The MBP/EPA Climate Ready Estuaries partnership will position the program for ongoing work in the area of climate change vulnerability assessment and adaptation. In addition, MBP will use this effort to begin the process of incorporating climate considerations into all components of its Strategic Plan.

Ongoing Initiatives

- **A8a. Climate Ready Estuaries:** The EPA/MBP Climate Ready Estuaries Partnership will culminate in a two-day Salt Marsh Vulnerability Expert Elicitation Workshop scheduled for April 27 and 28. The results of the Workshop will further refine MBPs role in climate change adaptation planning as it relates to coastal wetland and other natural environments. Efforts to partner with CZM's Storm Smart Coast Program on more comprehensive adaptation planning initiatives are ongoing.
 - Responsible Parties: MBP Director, Marine Scientist
 - Budget: \$0 MBP Cash
 - Products: Preliminary and final workshop report
 - Outcomes: Improved understanding of the vulnerability of salt marshes to climate stressors
 - Region: Bays-wide
 - Time Line: workshop held April, 2010; Preliminary report, Summer 2010; final report, Fall 2010

- CCMP Action item: This is a new item in our Strategic Plan, which will be incorporated into our next CCMP revisions
- CWA Core Program Area: Wetland Program
- **A8b. Adopt a Beach:** The Salem Sound adopt a beach program will train volunteers to collect long-term data documenting the impacts of sea level rise to area beaches as well as coastal infrastructure. The program will train volunteers to conduct beach profiling exercises and coastal surveys to document accretion and erosion rates and other indicators of change related to climate stressors.
 - Responsible Parties: Salem Sound RSP
 - Budget: \$0 MBP Cash
 - Products: Data reports and analysis of erosion/accretion trends along Salem Sound Beaches
 - Outcomes: Improved understanding of beach erosion and accretion rates in Salem Sound
 - Region: Salem Sound
 - Time Line: Monitoring will occur through 2010-2011
 - CCMP Action item: This is a new item in our Strategic Plan, which will be incorporated into our next CCMP revisions
 - CWA Core Program Area: Wetland Program

Goal B: Build organizational effectiveness for the Massachusetts Bays Program

MBP will continue to improve organizational effectiveness of the program by promoting its accomplishments, building new and diverse partnerships and exploring new funding sources for the program. These efforts will be the primary responsibility of the new Program Coordinator position and a time line for completing each of the following objectives as well as deliverables and outcomes will be developed once that position is filled. Key objectives in this area for the coming year include:

- B1 Continuing to maintain and update the MBP Web Page (www.massbays.org)
- B2. Producing a quarterly newsletters that details accomplishments related to the implementation of the CCMP
- B3. Developing information packet for existing and potential MBP Management Committee members. Anticipated completion date of Fall 2010
- B4. Developing a CCMP reporting tool: As the first phase of this project, the Mass Bays Program Coordinator will develop a more detailed time line and anticipated completion schedule for all on-the ground restoration and mitigation projects. Anticipated completion date of phase one- Fall 2010; final reporting tool- Summer 2011
- B5. Developing an MBP Finance Plan: Anticipated completion date of Summer 2011
- B6. Continuing to expand formal membership of MBP Management Committee. MBP has set a goal of adding five new Management Committee members by the close of FY11. Ongoing/

VII. Previous Year Activities

The following section provides a description of major activities undertaken by MBP during FY10 beginning with Bays-wide initiative and moving through estuarine protection and restoration efforts specific to each region. The following list represents highlights of major program focus areas, and does not represent the full range of project management, technical assistance, and capacity building efforts undertaken by MBP staff and RSPs.

A. Bays-Wide Initiative

Climate Ready Estuaries: In 2009, MBP was granted an award of technical assistance by EPA under the first Climate Ready Estuaries Request for responses. Deliverables to date include two conceptual models developed by EPA that summarize interactions of climate stressors and two key salt marsh ecosystem processes, trophic interactions and sediment retention. The project will culminate in an “Expert Elicitation” workshop, where a panel of 14 salt marsh scientists will refine conceptual models and further project the response of salt marshes to climate change during a two day facilitated workshop.

- Deliverables to Date: Salt Marsh Conceptual models
- Time line for completion: Spring, 2010 (Workshop Scheduled for April 27 and 28, 2010)
- CWA Core Program Area: Wetland Program
- MBP Role: Primary
- Transferability: transferable to other NEPs and wetland conservation programs
- External Factors: weather forced postponement of originally scheduled workshop resulting in some changes to expert panel

State of the Bays: In 2004, MBP released its first “State of the Bays” publication, which reported on the status of 14 indicators of environmental health in the MBP planning area. Later in 2010, MBP will publish a new State of the Bays Report, which provides an update on changes in many of these indicators over the past six years, as well as new indicators of ecosystem health indentified by the MBP Management Committee. This report will provide the basis for MBP's efforts to refine its approach to developing and reporting on ecosystem indicators over the coming years.

- Deliverables to Date: Draft SOB report including 16 indicators of environmental health, case studies, and regional spotlights.
- Time line for completion: Summer, 2010
- CWA Core Program Area: 2, Wetland Program
- MBP Role: Primary
- Transferability: Applicable to other resource management agencies in Massachusetts
- External Factors: none

Greenscapes: MBP staff and regional service providers continue to be key partners in the Greenscapes Massachusetts Program, which seeks to educate citizens and professionals about landscaping practices that have less adverse impact on the environment. To date, this program has formed partnerships with 20 communities within the Massachusetts Bays planning area, providing outreach and training to citizens within these cities and towns and, in many cases, assisting these communities in complying with education and outreach requirements of NPDES Phase II permits. Future plans for Greenscapes involve updating the program to conform to new Phase II regulations and focusing the program on specific residential and commercial needs of partner communities.

- Deliverables to Date: FY10 deliverables include developing and staffing presentations at agricultural fairs and clubs such as the Topsfield Fair, Danvers Green Fair, and the Mattakeesett (Pembroke) Garden Club; development of fifth grade classroom activities on the South Shore such as “Watershed Jeopardy;” and distribution of the Greenscapes calendar and newsletter to partner communities.
- Time line for completion: Ongoing
- CWA Core Program Area: 4, 5
- MBP Role: Primary
- Transferability: relevant nationwide
- External Factors: change in NPDES Phase II permit may affect applicability

Diadromous Fish Run Monitoring: Through the efforts of the South Shore RSP, MBP secured funding in 2009 to initiate Bays wide anadromous fish run monitoring. Goals and deliverables related to this project are detailed under section VI, Objective A1, above.

Eelgrass Restoration and Conservation Moorings: MBP was awarded funding by the ANEP/NOAA Community Based Restoration Partnership in winter 2009 and will implement the project in 2010-2011 as described in section VI. Objective A1, above

MBP Fact Sheets: In 2009, the MBP Outreach and Policy Coordinator, in conjunction with RSPs, developed a series of five full color fact sheets highlighting the goals, objectives and recent accomplishments of MBP and each of its four currently staffed regions. The fact sheets will be used as part of the recruitment package for Management Committee Members and partners, and as general outreach for our communities and constituents. These fact sheets can be viewed at www.massbays.org.

- Deliverables to Date: Five MBP Program Fact Sheets
- Time line for completion: Complete
- CWA Core Program Area: NA
- MBP Role: Primary
- Transferability: not transferable
- External Factors: none

MBP Quarterly newsletters: As part of its renewed commitment to reporting on progress in implementing its CCMP, MBP developed a new newsletter format and published four quarterly newsletters. These newsletters can be viewed at www.massbays.org

- Deliverables to Date: Four quarterly newsletters
- Time line for completion: Complete
- CWA Core Program Area: NA
- MBP Role: Primary
- Transferability: not transferable
- External Factors: none

Other Program Accomplishments: As outlined in Section I, the focus of the Executive Director and central staff during the first half of FY10 was on strengthening the foundation of the program, solidifying the Management Committee and engaging new partners. Successes in these areas will enhance the program’s ability to achieve meaningful environmental results with the help of renewed program partnerships.

- Deliverables to Date: Final MBP Operating Procedures; Establishment of Executive, Nominating and Governance, and Habitat Committee, addition of four new management committee members/organizations; plans for reengaging the Metro Boston Region through the proposed development of a Boston Harbor Habitat Atlas.
- Time line for completion: Complete
- CWA Core Program Area: NA
- MBP Role: Primary
- Transferability: not transferable
- External Factors: none

B. Cape Cod Region

Stony Brook Restoration Project

- Deliverables to Date: Finalized grant application; Submitted quarterly ARRA reports; acquired local conservation commission permits; developed two year monitoring plan biannual mentoring reports;
- Time line for completion: Construction to be completed in FY 11
- CWA Core Program Area: 2,4, Wetland Program
- MBP Role: Significant
- Transferability: NA
- External Factors: NA

Mayo Creek Salt Marsh Restoration Feasibility Study

- Deliverables to Date: Grant application submitted resulting in \$40,000 award for feasibility study from the Gulf of Maine Council Community Based Restoration Partnership; RFP developed for modeling restoration options; feasibility study initiated
- Time line for completion: Feasibility study to be completed by end of FY11
- CWA Core Program Area: Wetland Program
- MBP Role: Significant
- Transferability: NA
- External Factors: NA

Upper Shawme Pond Fish Passage Restoration Project

- Deliverables to Date: Fish ladder installed; final reports to GOMC/NOAA submitted
- Time line for completion: Project Complete
- CWA Core Program Area: Wetland Program
- MBP Role: Significant
- Transferability: NA
- External Factors: NA

Cape Cod NRCS Watershed Restoration Project

- Deliverables to Date: List of priority projects developed in conjunction with MBP local governance committee
- Time line for completion: First round of projects to be finalized and completed by December 31, 2011
- CWA Core Program Area: 2, 4, 5 Wetland Program
- MBP Role: Significant
- Transferability: NA
- External Factors: NA

Provide technical Assistance for Implementing Stormwater Utilities

- Deliverables to Date: Full scale stormwater feasibility study initiated in the town of Yarmouth with MBP assistance; additional stormwater utility education presentation provided throughout the Cape Cod Region
- Time line for completion: Yarmouth feasibility study to be completed by close of FY11
- CWA Core Program Area: 2,4,5
- MBP Role: Significant
- Transferability: Transferable nationally
- External Factors: Perception of stormwater fees as a tax limits implementation

C. South Shore Region

Post Restoration Monitoring of South Shore Salt Marshes

- Deliverables to Date: Invertebrate sampling and report completed for Musquashcut Pond and Green Harbor River;
- Time line for completion: ongoing, future plans include organizing students to sample vegetation, nekton, and invertebrates in these and additional salt marshes
- CWA Core Program Area: Wetland Protection
- MBP Role: Primary
- Transferability: NA
- External Factors: NA

First Herring Brook Restoration Project

- Deliverables to Date: Application for priority project status submitted to DER; First Herring Brook Priority Project status was subsequently granted
- Time line for completion: Target date for draft Restoration Plan, summer 2011
- CWA Core Program Area: Wetland Program
- MBP Role: Significant
- Transferability: NA
- External Factors: NA

Duxbury Bay Management Plan

- Deliverables to Date: Completed water quality analysis to inform the plan; Assisted with the development of the draft State of Duxbury Bay report
- Time line for completion: State of Duxbury Bay Report and Duxbury Bay Management Plan to be completed during FY11
- CWA Core Program Area: 2, 4, 5 Wetland Program
- MBP Role: Significant
- Transferability: NA
- External Factors: NA

Third Herring Brook (Norwell/Hanover) Fish passage Restoration

- Deliverables to Date: Organized volunteer monitoring of stream flow and submitted data report to DER
- Time line for completion: ongoing
- CWA Core Program Area: Wetland Program
- MBP Role: Significant
- Transferability: NA
- External Factors: NA

Inner Little Harbor (Cohasset) tide gate management plan

- Deliverables to Date: Presented report at Coastal and Estuarine Research Foundation on Inner Little Harbor invertebrate, nekton, and vegetation data. Presented biological condition report to Cohasset Conservation Commission
- Time line for completion: Development of tide gate management plan to be completed during FY11
- CWA Core Program Area: 2, 4, 5 Wetland Program
- MBP Role: Significant
- Transferability: NA
- External Factors: NA

319 funded rain garden project in the Town of Kingston

- Deliverables to Date: Developed and delivered educational sign to be posted at rain gardens (to be constructed as part of the project)
- Time line for completion: MBP obligation complete
- CWA Core Program Area: 4,5
- MBP Role: Significant
- Transferability: NA
- External Factors: NA

Bacterial Source Tracking Efforts in the South River (Marshfield)

- Deliverables to Date: Won DEP 604(b) grant to initiate bacterial source tracking. Wrote QAPP for monitoring. Completed first project report.
- Time line for completion: Preliminary design of stormwater remediation options to be completed June 2011.
- CWA Core Program Area: 2, 3, 4, 5
- MBP Role: Significant
- Transferability: NA
- External Factors: NA

D. Salem Sound

Salt Marsh Monitoring at Thissel Marsh (Beverly) and Pickman Park (Salem)

- Deliverables to Date: Developed and posted interpretive signs at Thissel Marsh; Developed data report on vegetation, nekton, and invertebrates; developed scope of work for continued volunteer sampling at six marshes
- Time line for completion: Restoration on hold due to funding shortfall. CWA Core Program Area: Wetland Program
- MBP Role: Significant
- Transferability: NA
- External Factors: NA

Salt March Monitoring in Support of State Wetland Classification System (Conservation Assessment and Prioritization System, or CAPS)

- Deliverables to Date: Sampled 45 marshes in Massachusetts for macroinvertebrates and submitted data report on 180 samples collected
- Time line for completion: Sampling will continue through 2011
- CWA Core Program Area: Wetland Program
- MBP Role: Support
- Transferability: NA
- External Factors: NA

**Benthic Survey of Recently Restored Tidal Flats of the Upper Mill River (Gloucester)
Focusing on Soft Shell Clams (*Mya arenaria*)**

- Deliverables to Date: 2008 study report and associated web page developed; 2009 data report; Presentation given on restoration results at the Cape Ann speaker series;
- Time line for completion: Post restoration monitoring will continue through 2011
- CWA Core Program Area: Wetland program
- MBP Role: Primary
- Transferability: NA
- External Factors: NA

Brownfield sites cleanup in Peabody and Salem

- Deliverables to Date: Assisted with organization of physical cleanup of two Brownfield sites; Assisted with development of grant application to EPA for the cleanup of a Brownfield site in Peabody.
- Time line for completion: TBD pending grant application results
- CWA Core Program Area: Wetland Program
- MBP Role: Support
- Transferability: NA
- External Factors: NA

E. Upper North Shore

Great Marsh *Phragmites* Monitoring and Control

- Deliverables to Date: Developed *Phragmites* control prioritization plan; developed data report and power point presentation on effectiveness of various control efforts; submitted proposal for use of aerial photography to prioritize *Phragmites* control efforts throughout the Great Marsh
- Time line for completion: ongoing monitoring and control efforts planned through 2011-2012
- CWA Core Program Area: Wetland Program
- MBP Role: Primary
- Transferability: Techniques are transferable nationally
- External Factors: NA

Pepperweed Monitoring and Removal Efforts

- Deliverables to Date: Data report completed for 2009 sampling in Great Marsh communities
- Time line for completion: Monitoring will continue through 2011 and expand to other regions of MBP planning area
- CWA Core Program Area: Wetland Program
- MBP Role: Primary
- Transferability: NA
- External Factors: NA

Great Marsh NRCS Watershed Action Plan

- Deliverables to Date: Held initial scoping meeting with over 30 participants; created draft planning area map; formed finance subcommittee
- Time line for completion: TBD pending NRCS funding

- CWA Core Program Area: 2, 4, 5 Wetland Program
- MBP Role: Primary
- Transferability: NA
- External Factors: NA

Great Marsh Oil Spill Response Plan

- Deliverables to Date: Final Response Plan
- Time line for completion: Complete
- CWA Core Program Area: Wetland Program
- MBP Role: Support
- Transferability: NA
- External Factors: NA

VIII. Impacts of External Factors

As outlined in Section 1 of this document, 2009-2010 marked a year of change and renewal for the Massachusetts Bays Program. Many of the internal issues that had caused turbulence within the program in recent years have been resolved as a result of changes in leadership and an effort to “shore-up” MBP operations. The Massachusetts Bays Program Staff, Regional Service Providers, and Management Committee are poised and eager to move forward with the work of implementing the Comprehensive Conservation and Management Plan. This shift is evidenced by increased state, regional, and local contributions to match for the program (MBP is no longer reliant on state land acquisition grants for match), increased attendance and interest in the MBP Management Committee, and a forward looking, positive tone at recent Management Committee meetings.

In spite of this new level of organizational stability, MBP continues to face challenges related to competition for resources due to both fiscal constraints, and a state and national shift in environmental priorities. Late in 2009, MBP lost one of its three central staff members, Carole McCauley, the program’s Outreach and Policy Coordinator. While losing this valued staff member was troublesome on its own, the position remains unfilled as of this writing due to an unofficial state hiring freeze. This hiring freeze is a product of the current economic downturn and the need for the state to exercise fiscal constraint. While MBP has sufficient funds to fill the position, this informal freeze has been applied throughout state government. Fortunately, MBP has recently been granted permission to post the position, and it will be advertised beginning April 19, 2010. MBP hopes to have a Program Coordinator on board by the beginning of the next fiscal year.

Over the past several years, there has been a tangible shift in priorities within the environmental community. Current emphasis nationwide and within Massachusetts is on climate change mitigation and, to some degree, adaptation. While attention to the causes and potential impacts associated with climate change warrant immediate and aggressive action, this shift has also resulted in a diversion of attention and resources away from many of the issues dealt with traditionally by MBP and the National Estuary Program. The benefit of this shift however, has been the added incentive and motivation for MBP to take on this important issue, and to incorporate the very real threats from climate change into our existing projects, as well as our Strategic Plan. The result has been a valuable partnership with EPA through the Climate Ready Estuaries Initiative, and future plans to partner and work with Massachusetts Coastal communities to help them adapt to the potential impacts of climate change.

IX. CWA Funds Used for Travel and National Meeting Attendance

Position	Date	Amount
Executive Director		
- ANEP Directors Meeting, and Coastal and Estuarine Research Federation Meeting, Portland, OR	11/1/2009-11/7/2009	1999.30
- EPA/ANEP National Meeting, Arlington, VA	2/22/2010-2/24/2010	1130.22
- Local travel		
Marine Monitoring Scientist		
- Local travel		148.00
Outreach and Policy Coordinator		
- Local travel		221.40
Anticipated Travel		
- Local and regional meeting and events		400.00
TOTAL TRAVEL		\$3898.92